REMARKS

This Response is submitted in reply to the non-final Office Action mailed on September 21, 2009. A petition for a one month extension of time is submitted with this Response. The Director is authorized to charge $65.00 for the petition for one month extension and any additional fees that may be required, or to credit any overpayment to Deposit Account No. 02-1818. If such a withdrawal is made, please indicate the Attorney Docket No. 3712161-91 on the account statement.

Claims 1, 3 and 5-17 are pending in this application. Claims 2 and 4 were previously canceled. In the Office Action, Claims 1, 3 and 5-17 are rejected under 35 U.S.C. § 103. In response, Claims 1 and 8 have been amended, and Claim 7 has been canceled without prejudice or disclaimer. The amendments do not add new matter. In view of the amendments and/or for the reasons set forth below, Applicants respectfully submit that the rejections should be withdrawn and the application now passed to allowance.

Applicants have noted some errors in the specification as published in the US 2007/0134392 A1 publication. The amendments are supported in the originally filed specification at paragraphs 38 and 40.

In the Office Action, Claims 1, 3 and 5-17 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,890,571 to Shi et al. ("*Shi*") in view of U.S. Patent No. 5,849,090 to Haralampu et al. ("*Haralampu*"). Claims 3, 5-7 and 9-15 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Shi* in view of *Haralampu*. Applicants respectfully traverse these rejections for at least the reasons set forth below.

Independent Claim 1 has been amended to recite, in part, that the starch product has 2 – 70% w/w short-chain amylose with a polymerization level < 100 relative to the starch product. The amendment is supported in the specification, for example, at paragraph 19 of U.S. Patent Publication No. 2007/0134392. Independent Claim 8 has been amended to recite, in part, at least partially gelatinizing or at least partially plasticizing in a molecularly dispersed state via extrusion at least one starch having an amylose content of > 20 %. The amendment is supported in the specification, for example, at paragraph 20 of U.S. Patent Publication No. 2007/0134392. It should be appreciated that the technical term "plasticize" in Applicants' specification refers to converting granular polymers via high temperature and pressure to lower their viscosity. The

term should not be misinterpreted as adding a plasticizer. In contrast, *Shi* and *Haralampu* fail to disclose each and every element of independent Claims 1 and 8.

Applicants have surprisingly found it advantageous to use short chain amylose ("SCA") with a polymerization level of <100. For example, SCA can be obtained from amylose by using amylases or pullulanase. The use of SCA makes it possible to obtain especially advantageous slowly digestible starch products, and in particular to tangibly accelerate the formation of advantageous networks, thereby making the process easier and more cost effective. In addition, thermal stability is increased. The SCA works to induce crystallinity in the basic starch on the one hand by forming mixed crystallites, and increase network density on the other, thereby reducing the swelling capacity, and hence the hydrolysis rate.

To realize the advantages, a molecularly disperse mixture of basic starch with the SCA is important. This is achieved by mixing the SCA, e.g., in the form of a solution, with the at least partially gelatinized basic starch, or by adding the SCA in an amorphous state, e.g., in spray-dried form, or by adding the SCA in partially crystalline form, and then solubilizing it during preparation of the basic starch, or by directly obtaining the SCA during preparation of the basic starch by using debranched enzymes directly from the basic starch. Similar advantages are obtained when treating the basic starch with additional amylases, such as alpha amylase. This reduces the molecular weight and improves crystallizability. In addition, networks can also be obtained during the use of SCA under conditions where no networks would arise without SCA, e.g., at low water contents and low temperatures, where the basic starch is present in an amorphous, quasi-frozen state.

In order to manufacture the slowly digestible starch product, the basic starch is set to an at least partially gelatinized state or at least partially plasticized state in a first step. It is advantageous that the SCA be molecularly dispersed in the basic starch in this state. This is achieved through known cooking and mixing processes. Preparation via extrusion is particularly advantageous.

Shi and *Haralampu* fail to disclose or suggest a starch product having 2 – 70% w/w short-chain amylose with a polymerization level < 100 relative to the starch product as required by independent Claim 1. *Shi* and *Haralampu* also fail to disclose or suggest at least partially

gelatinizing or at least partially plasticizing in a molecularly dispersed state via extrusion at least one starch having an amylose content of > 20 % as required by independent Claim 8.

Shi discloses a slowly digestible starch product prepared by debranching low amylose starches and allowing the resultant linear short chains to crystallize to a highly crystalline form. *Shi* specifically teaches the starch product has a content of short-chain amylose of at least about 90 %. See *Shi*, column 3, lines 45 - 50. Moreover, as *Shi* fails to disclose any starch having an amylose content of > 20 % or any extrusion processes, *Shi* cannot disclose partially gelatinizing or partially plasticizing in a molecularly dispersed state via extrusion a starch having an amylose content of > 20 %.

Haralampu discloses a method of producing a granular resistant starch comprising the steps of heating a granular native starch to swell but not rupture the starch granules, debranching the starch and treating the starch to retrograde the amylose therein to form a granular resistant starch product. *Haralampu* fails to teach that the granular resistant starch product has 2 – 70% w/w short-chain amylose in accordance with Claim 1. Moreover, according to *Haralampu*, granular native starch is heated to swell but not rupture the starch granules, which are debranched and treated to retrograde the amylose resulting in modified starch granules that have not been destroyed during the process. The process of *Haralampu* to maintain the starch granules teaches away from the claimed method in which the starch is at least partially gelatinized or at least partially plasticized via extrusion, thereby destroying the starch granules. The starch is not dissolved during extrusion but converted to a plasticized state.

In sum, *Shi* and *Haralampu* fail to disclose or suggest each and every element of independent Claims 1 and 8. Moreover, *Shi* and *Haralampu* fail to even recognize the advantages, unexpected benefits and/or properties of the slowly digestible starch product or method of making same in accordance with the present claims. For at least the reasons discussed above, Applicants respectfully submit that independent Claims 1 and 8, along with the claims that depend from Claims 1 and 8, are novel, nonobvious and distinguishable from the cited references.

Accordingly, Applicants respectfully request that the rejections of Claims 1, 3 and 5-17 under 35 U.S.C. §103 be withdrawn.

For the foregoing reasons, Applicants respectfully request reconsideration of the above-identified patent application and earnestly solicit an early allowance of same. In the event there remains any impediment to allowance of the claims which could be clarified in a telephonic interview, the Examiner is respectfully requested to initiate such an interview with the undersigned.

Respectfully submitted,

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